Chemical Physics

Contents

VOL. 267, NOS. 1–3
1 JUNE 2001

Abstracted/indexed in: Chemical Abstracts, ERDA Abstracts, ISI Current Contents, Inspec Abstracts, Nuclear Engineering Abstracts, Physics Abstracts, Physikalische Berichte/Physics Briefs

Laser Control of Quantum Dynamics

Preface vii

Basic foundations and concepts

Quantum wavefunction controllability
G. Turinici and H. Rabitz 1

Cartan decomposition of SU(2^n) and control of spin systems
N. Khaneja and S.J. Glaser 11

Control of molecular systems with very few phases
V. Ramakrishna 25

Fully quantum coherent control
M. Gruebele 33

Pulse control tools and concepts

Control of non-Franck–Condon transitions: lighting a dark state
V.S. Malinovsky and J.L. Krause 47

Selective preparation of enantiomers from a racemate by laser pulses: model simulation for oriented atropisomers with coupled rotations and torsions
K. Hoki, D. Kröner and J. Manz 59

Coherent control of atom–diatom reactive scattering: isotopic variants of $H + H_2$ in three dimensions
A. Abrashkevich, M. Shapiro and P. Brumer 81

Inelastic scattering of a pulsed electron beam from a molecular wave packet
M. Ferrero and F. Robicheaux 93

Coherent manipulation of physical phenomena

The role of microscopic and macroscopic coherence in laser control
V.V. Lozovoy, B.I. Grimberg, I. Pastirk and M. Dantus 99

Optical control of electronic state populations via the dynamic Stark effect
T. Dove, T.W. Schmidt, R.B. López-Martens and G. Roberts 115

The influence of molecular structure on strong field energy coupling and partitioning
A.N. Markevitch, N.P. Moore and R.J. Levis 131

Phase-tailoring molecular wave packets to time shift their dynamics
Z. Amitay, J.B. Ballard, H.U. Stauffer and S.R. Leone 141

Terahertz polaritonics: automated spatiotemporal control over propagating lattice waves
R.M. Koehl and K.A. Nelson 151

(continued on inside back page)

0301-0104(20010601)267:1-3;1-S

http://ChemWeb.com
The World Wide Club for the Chemical Community

Contents

(continued from outside back cover)

Coherent control of second harmonic generation using spectrally phase coded femtosecond waveforms
Z. Zheng and A.M. Weiner 161

Optimal control theory and experiments

Design of optimal infrared femtosecond laser pulses for the overtone excitation in acetylene
C.M. Tesch, K.-L. Kompa and R. de Vivie-Riedle 173

Quantum control of alignment and orientation of molecules by optimized laser pulses
K. Hoki and Y. Fujimura 187

Laser cooling of molecules by dynamically trapped states
A. Bartana, R. Kosloff and D.J. Tannor 195

Achieving the laboratory control of quantum dynamics phenomena using nonlinear functional maps
J. Geremia, E. Weiss and H. Rabitz 209

Control of the photodissociation process of CsCl using a feedback-controlled self-learning fs-laser system
T. Feurer, A. Glaß, T. Rozgonyi, R. Sauerbrey and G. Szabo 223

Feedback optimization of shaped femtosecond laser pulses for controlling the wavepacket dynamics and reactivity of mixed alkaline clusters
Š. Vajda, A. Bartelt, E.-C. Kaposta, T. Leisner, C. Lupulescu, S. Minemoto, P. Rosendo-Francisco and L. Wöste 231

Problem complexity in femtosecond quantum control
T. Brixner, B. Kiefer and G. Gerber 241

Analysis and control of laser induced fragmentation processes in $CpMn(CO)_3$
C. Daniel, J. Full, L. González, C. Kaposta, M. Krenz, C. Lupulescu, J. Manz, S. Minemoto, M. Oppel, P. Rosendo-Francisco, Š. Vajda and L. Wöste 247

Coherent control of the molecular four-wave-mixing response by phase and amplitude shaped pulses
T. Hornung, R. Meier, R. de Vivie-Riedle and M. Motzkus 261

Attosecond time-scale feedback control of coherent X-ray generation
R. Bartels, S. Backus, I. Christov, H. Kapteyn and M. Murnane 277

Author index 291

Subject index 295

Instructions to authors 303

CONTENTS Direct

This journal is part of **ContentsDirect,** the ***free*** alerting service which sends tables of contents by e-mail for Elsevier Science books and journals. You can register for **ContentsDirect** online at: **www.elsevier.nl/locate/contentsdirect**